

Respiratory Face Mask

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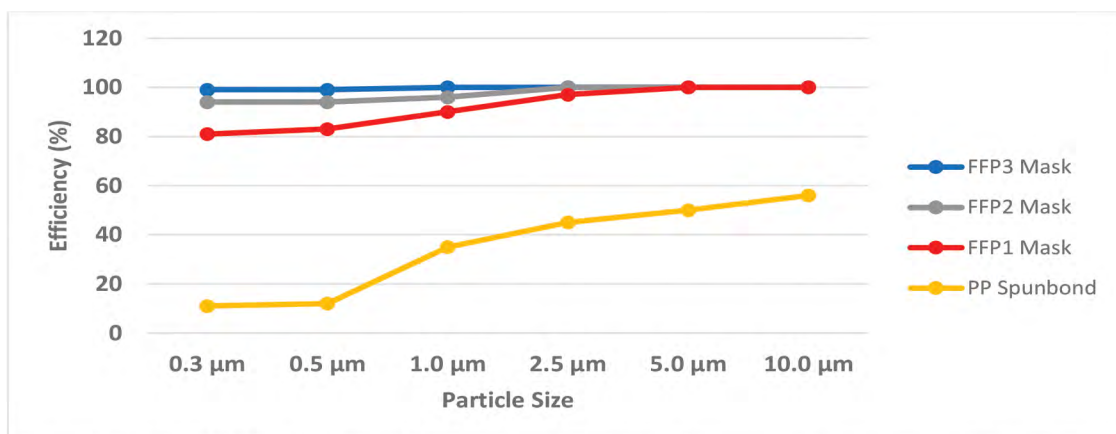
Nanofibers with large surface area to volume ratio have shown great potential in filtration applications, including air filtration, dust capture as well as absorbing and detoxifying biological and chemical contaminants. Polymer nanofibers with polar functional groups have strong affinity to particulate matter (PM) pollutants and therefore show high removal efficiency at low pressure drop and high optical transparency. Nanofibers are promising for use in face masks to achieve both high PM capture efficiency and sufficient air permeability.



According to BS EN 149:2001 standard for “filtering half masks” (also called filtering face pieces), FNM Co. Ltd., can produce different classes of respiratory face masks (FFP1, FFP2 and FFP3). The performance of FNM’s nanofiber-based respiratory face masks is compared with conventional masks (without nanofiber layer) in Table 1 and Figure 2.

Performance of FNM’s nanofiber-based respiratory face masks and conventional respiratory face mask

Sample Name	Efficiency (%)						Pressure Drop (Pa) @ 30 l/min
	0.3 μm	0.5 μm	1.0 μm	2.5 μm	5.0 μm	10.0 μm	
FFP1 Mask	81	83	90	97	100	100	55
FFP2 Mask	94	94	96	100	100	100	63
FFP3 Mask	99	99	100	100	100	100	85
PP Spunbond (Substrate)	11	12	35	45	50	56	13



Efficiency of FNM’s nanofiber-based respiratory face masks compared to conventional masks.